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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,519	02/22/2002	Yasuhiro Omura	1539.1019	6694

21171 7590 03/06/2003

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EXAMINER

NGUYEN, HUNG

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 03/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/079,519

Applicant(s)

OMURA, YASUHIRO

Examiner

Hung Henry V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 February 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 and 29 is/are allowed.
- 6) ☒ Claim(s) 10-28 and 30 is/are rejected.
- 7) ☒ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. U.S.Pat. applications serial number 09/736,420; 09/377,010; 09/865,734 cited in the Information disclosure statement filed February 22, 2002 have been reviewed and they have been placed in the application file, but have been crossed out in the PTO-Form 1449 since they are not Published U.S. Patent and will not be printed.

### ***Abstract***

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because:

- a. The abstract exceeds 150 words in length.
- b. The terms used in the claims such as "comprises", "comprising" should be omitted.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10-28, 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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As to claim 10, the claim recites conventional elements of an exposure apparatus such as a light source, an illumination optical system, and a projection optical system and then lengthy “wherein” clauses. However, the “wherein” clauses assign functions to the respective elements that they do not appear to be capable of performing. The recitation of “a linewidth of the radiation from the light source is narrower than a natural linewidth thereof” is ambiguous and indefinite. The applicant is reminded that in order to be given patentable weight, a functional recitation must be expressed as a “means” for performing the specified function and must be supported by recitation in the claim of sufficient structures to warrant the presence of the functional language.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

6. Claims 10-12, 21, 24-28 and 30 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Seunaga (U.S.Pat. 6,377,338).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

With respect to claims 10-12, 21, 24-28 and 30, Seunaga discloses an exposure apparatus comprising all basic features of the instant claims such as: F2 laser light source (2) having a wavelength of 157nm for supplying radiation beam ; an illumination system (3-14) for receiving at least some of the radiation from the light source and guiding at least some of the received

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radiation to the reticle (R) ; a projection optical system (PL) for projecting a predetermined pattern formed on the reticle onto a substrate (W); wherein the projection optical system comprises one or more refractive optical elements collectively comprising at least two fluoride substances such as calcium fluoride, barium fluoride, lithium fluoride, magnesium fluoride, lithium calcium aluminum fluoride, and lithium strontium aluminum fluoride(see abstract; and col.10, lines 25-30, and claim 8). Seunaga further teaches the F2 laser “has a sufficient narrow full width at half maximum on the order of 1.5pm at the natural frequency” (see col.17, lines 15-20; col.38, lines 1-5) and the light source is oscillated and amplified by a fiber amplifier (see col.37, lines 39-46). Although, Seunaga does not specifically disclose the claimed oscillator (as recited in claim 26) this feature is seen to be an inherent teaching of the light source (which is oscillated) since an oscillator must be present for the light source to function as intended.

***Allowable Subject Matter***

7. Claims 13-20, 22-23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. Claims 1-9, and 29 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: while the prior art of record teaches an exposure apparatus for transferring a pattern formed on a reticle onto a substrate having a F2 laser with narrow linewidth, and a projection optical system with refractive members made of at least two fluoride substances but does not specifically disclose the projection optical system having first refractive member made of first fluoride

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substance, and a second refractive member made of second fluoride substance satisfying conditions as recited in the instant claims.

***Prior Art Made of Record***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

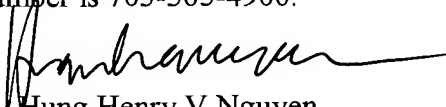
Basting et al (U.S.Pat. 6,426,966) discloses a F2 laser with narrow spectral linewidth comprising an linewidth narrowed oscillator and followed by an amplifier for increasing the power of the beam output; Takahashi (U.S.Pat. 6,157,498) discloses a micro lithography having projection optical system with diffractive elements made of fluoride; and Bruning (U.S.Pat. 4,883,352) discloses a deep UV photolithography device having a narrow bandwidth pulsed laser illumination source.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 703-305-6462. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

hvn  
March 3, 2003

  
Hung Henry V Nguyen  
Primary Examiner  
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